UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,822	08/19/2003	Yuh-Miin Yeh	BHT-3212-37	3095

7590 01/16/2007 TROXELL LAW OFFICE PLLC SUITE 1404 5205 LEESBURG PIKE FALLS CHURCH, VA 22041	**EXAMINER** ETTEHADIEH, ASLAN

ART UNIT	PAPER NUMBER
2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

	Application No.	Applicant(s)
Office Action Summary	10/642,822	YEH, YUH-MIIN
	Examiner	**Art Unit**	
	Aslan Ettehadieh	2611	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 August 2003*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 16-18* is/are rejected.

7)☒ Claim(s) *13-15,19 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 August 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *8/18/04*.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1.   The information disclosure statement filed 08/08/2004 fails to comply with MPEP

§ 2218 because the submission does not at the least include an English translation of

the abstract/summary. The information disclosure statement filed 08/08/2004 will <u>not</u> be

considered. A copy of each cited patent or printed publication, as well as a translation

of each non-English document (or a translation of at least the portion(s) relied upon) is

required so that all materials will be available to the examiner for full consideration. See

MPEP § 2218.

Specification

2.   The lengthy specification has not been checked to the extent necessary to

determine the presence of all possible minor errors. Applicant's cooperation is

requested in correcting any errors of which applicant may become aware in the

specification.

Drawings

3.   Figures 1 and 2 should be designated by a legend such as --Prior Art-- because

only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in

compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid

abandonment of the application. The replacement sheet(s) should be labeled

"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct

any portion of the drawing figures. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4.   Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 17, claim 17 is vague because: "according to the third vector, determining which weight distribution waveforms to selected from the above and combining the selected weighted distribution waveforms to generate the modulation signals" is unclear.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (US 2004/0081255; hereinafter AAPA) in view of Orr et al. (US 2002/0150068) in further view of Goodwin et al. (US 4725844).

6.   Regarding claims 1, 17 (where the steps claimed as method is nothing more than restating the function of the specific components of the apparatus and therefore, it is rejected as in considering the apparatus rejection), AAPA discloses a filtering apparatus

in an 8 Phase Shift Keying (8PSK) system, the 8PSK system being utilized for encoding

a series of digital bits to output a plurality of corresponding modulation signals, the

8PSK system comprising: a Gray mapping module for mapping a set of every 3 digital

bits into a corresponding first vector by a predetermined mapping process; a 3pi/8

phase shift module for shifting the phase of the first vector from the Gray mapping

module to generate a corresponding second vector by a predetermined phase shift

process; and a filtering apparatus for filtering the second vector from the 3pi/8 phase

shift module to generate one corresponding modulation signal (paragraphs 6 – 7).

AAPA does not disclose a plurality of modulation signals; and a pi/16 phase shift

module for further shifting the second vector from the 3pi/8 phase shift module with

pi/16 radians to generate a corresponding third vector; a weight distribution module for

distributing a plurality of selected weights to a predetermined distribution waveform and

for storing a plurality of corresponding weighted distribution waveforms; and a

combination module, according to the third vector, for determining which weight

distribution waveforms to be selected from the weight distribution module and

combining the selected weighted distribution waveforms to generate the modulation

signal.

In the same field of endeavor, however, Orr discloses a plurality of modulation

signals; and a phase shift module for further shifting the second vector generate a

corresponding third vector; a weight distribution module for distributing a plurality of

selected weights to a predetermined distribution waveform and for storing a plurality of

corresponding weighted distribution waveforms; and a combination module, according

to the third vector, for determining which weight distribution waveforms to be selected

from the weight distribution module and combining the selected weighted distribution

waveforms to generate the modulation signal (figure 2, paragraphs 26, 43, 44, 45).

Therefore it would have been obvious to one skilled in the art at the time of

invention was made to use a plurality of modulation signals; and a phase shift module

for further shifting the second vector generate a corresponding third vector; a weight

distribution module for distributing a plurality of selected weights to a predetermined

distribution waveform and for storing a plurality of corresponding weighted distribution

waveforms; and a combination module, according to the third vector, for determining

which weight distribution waveforms to be selected from the weight distribution module

and combining the selected weighted distribution waveforms to generate the modulation

signal as taught by Orr in the system of AAPA to provide more efficient modulation

(paragraphs 14, 18).

In the same field of endeavor, however, Goodwin discloses a pi/16 phase shift

(col. 2 lines 31 – 42).

Therefore it would have been obvious to one skilled in the art at the time of

invention was made to use pi/16 phase shift as taught by Goodwin in the system of

AAPA to finer resolution (col. 2 lines 31 – 42).

7.   Regarding claim 2, AAPA discloses wherein the set of every 3 digital bits

mentioned in the above constitutes 8 different permutations, and the predetermined

mapping process comprises: mapping each permutation of the 3 digital bits into the

corresponding first vector having the same magnitude but different phase, and the

phase difference between the adjacent first vectors being pi/4 (paragraphs 6 – 7, figure 1; wherein the 8 permutations are the 8 points in the constellation having the same magnitude but different phase as shown and wherein the phase difference between the adjacent first vectors would be pi/4 because pi/8 added to pi/8 would be pi/4).

8.   Regarding claim 3, AAPA discloses the predetermined phase shift process comprises: each time the phase of the current first vector shifted by the 3.pi./8 phase shift module being a phase of the sum of the phase of the previous first vector shifted by the 3.pi./8 phase shift module plus 3.pi./8 radians, and thereby generating the corresponding second vectors (paragraphs 6 – 7, figures 1, 2).

9.   Regarding claims 4 and 5, AAPA discloses the plurality of second vectors generated by the 3.pi./8 phase shift module constitute only 16 different possibilities, and the phase difference between the adjacent second vectors is .pi./8 (figure 2).

10.   Regarding claim 6, AAPA discloses each the plurality of third vectors is composed of a real part and an imaginary part, the real part is composed of a real-part magnitude and a real-part sign digit, the real-part magnitude represents the absolute value of the real part, and the real-part sign digit represents the positive or negative sign of the real part; the imaginary part is composed of an imaginary-part magnitude and an imaginary-part sign digit, the imaginary-part magnitude represents the absolute value of the imaginary part, and the imaginary-part sign digit represents the positive or negative sign of the imaginary part (figure 2; where it is well know that each constellation point represents an I and a Q value, and further depending on what quadrant the constellation point resides in determines the sign digit of the I and Q component).

11.   Regarding claims 7, 8, and 9, Goodwin further discloses wherein all the plurality

of corresponding real-part magnitudes and imaginary-part magnitudes of the third

vectors are selected from one of the following combinations: cos(pi/16), cos(3pi/16),

cos(5pi/16), and cos(7pi/16) (col. 2 lines 31 – 42; wherein 11.25 degrees relates to pi/16

and where with AAPA's I/Q signal components relates to a cos/sin relationship of 11.25

degrees and where cos and sin are trigonometric functions).

12.   Claims 10 – 12, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Applicant's Admitted Prior Art (US 2004/0081255; hereinafter AAPA) in view of Orr

et al. (US 2002/0150068) in view of Goodwin et al. (US 4725844) in further view of

Vannatta et al. (US 6421379).

13.   Regarding claims 10 and 18, AAPA does not disclose an encoder, according to

the phase of each of the third vectors, for encoding the third vector to generate a

corresponding encoding signal; and a shift register comprising a plurality of buffer units

for temporarily storing the plurality of current and previous encoding signals generated

by the encoder.

         In the same field of endeavor, however, Vannatta discloses an encoder,

according to the phase of each of the third vectors, for encoding the third vector to

generate a corresponding encoding signal; and a shift register comprising a plurality of

buffer units for temporarily storing the plurality of current and previous encoding signals

generated by the encoder (figure 10, col. 7 line 63 – col. 8 line 13).

         Therefore it would have been obvious to one skilled in the art at the time of

invention was made to use an encoder, according to the phase of each of the third

vectors, for encoding the third vector to generate a corresponding encoding signal; and

a shift register comprising a plurality of buffer units for temporarily storing the plurality of

current and previous encoding signals generated by the encoder as taught by Vannatta

in the system of AAPA for proper encoding.

14.   Regarding claims 11 and 12, AAPA discloses each of the plural encoding signals

comprises a real-part magnitude code, a real-part sign code, an imaginary-part

magnitude code, and an imaginary-part sign code and the modulation signal comprises

a real-part modulation signal and an imaginary-part modulation signal (figure 2; where it

is well know that each constellation point represents an I and a Q value, and further

depending on what quadrant the constellation point resides in determines the sign

digit/code of the I and Q component).

15.   Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Applicant's Admitted Prior Art (US 2004/0081255; hereinafter AAPA) in view of Orr et al.

(US 2002/0150068) in view of Goodwin et al. (US 4725844) in further view of Mita et al.

(US 4628297).

16.   Regarding claim 16, AAPA does not disclose the predetermined distribution

waveform is divisible to be a plurality of sub-distribution waveforms, the weight

distribution module comprises a memory having a plurality of memory units, and each

memory unit is utilized to store a plural weighted sub-distribution waveforms after the

corresponding weights are distributed to the sub-distribution waveforms.

In the same field of endeavor, however, Mita discloses the predetermined

distribution waveform is divisible to be a plurality of sub-distribution waveforms, the

weight distribution module comprises a memory having a plurality of memory units, and each memory unit is utilized to store a plural weighted sub-distribution waveforms after the corresponding weights are distributed to the sub-distribution waveforms (figure 3, 4, 7, col. 2 line 56 – col. 3 line 21).

Therefore it would have been obvious to one skilled in the art at the time of invention was made to use the predetermined distribution waveform is divisible to be a plurality of sub-distribution waveforms, the weight distribution module comprises a memory having a plurality of memory units, and each memory unit is utilized to store a plural weighted sub-distribution waveforms after the corresponding weights are distributed to the sub-distribution waveforms as taught by Mita in the system of AAPA to balance distribution of data (col. 3 lines 7 – 20).

Allowable Subject Matter

17.   Claims 13 – 15 and 19 – 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aslan Ettehadieh whose telephone number is (571) 272-8729. The examiner can normally be reached on Monday - Friday, 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on (571) 272-3021. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aslan Ettehadieh
Examiner
Art Unit 2637

AE

KHAI TRAN
PRIMARY EXAMINER